POLICY RESEARCH WORKING PAPER 1574

Bank Regulation

The Case of the Missing Model

Gerard Caprio, Jr.

The success of financial reform and the stability of financial systems depend partly on a regulatory framework that rewards prudent risk-taking and is attuned to both institutions and the structure of the economy. Such a framework should be developed and reshaped while participants in the financial system are adjusting to changes in incentives.

The World Bank
Policy Research Department
Finance and Private Sector Development Division
January 1996

POLICY RESEARCH WORKING PAPER 1574

Summary findings

Financial reform of one type or another has been increasingly popular since the early 1970s, but disappointment with the fruits of reform has been common. Reformers in Africa and in transitional economies have been especially disappointed, perhaps because of their high expectations.

Reform may also disappoint partly because of perverse sequencing. Often the more visible aspects of reform (such as complete deregulation of interest rates, recapitalization of banks, and more recently the creation of stock exchanges) are pursued before basic financial infrastructure (including auditing, accounting, and legal systems and basic regulations) are established.

Caprio focuses here on regulatory options in banking. He argues that for reform to succeed and for financial systems to remain stable, there must be a regulatory framework that encourages prudent behavior and is attuned to both institutions and the structure of the economy. Bank failure may reflect poor management, but poor management in turn reflects regulation that is not "incentive compatible." Caprio reviews options that would align bankers' incentives with society's preferences for safe and sound banking.

Adopting a framework that rewards prudent risk-taking will produce a more stable banking system. And because participants in the financial system — both individuals and organizations — take time to adjust to changes in incentives, it is important to begin reshaping the regulatory environment early in the reform process, at the same time as other measures are being taken to develop institutions.

This paper — a product of the Finance and Private Sector Development Division, Policy Research Department — was presented at a Brookings/KPMG conference on the Sequencing of Financial Reform. Copies of this paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Daniele Evans, room N9-026, telephone 202-473-8526, fax 202-522-1155, Internet address devans@worldbank.org. February 1996. (23 pages)

BANK REGULATION: THE CASE OF THE MISSING MODEL

by

Gerard Caprio, Jr.

Policy Research Department
The World Bank

This paper was presented at a Brookings/KPMG conference on the Sequencing of Financial Reforms. The author is indebted to conference participants, in particular David Cole, Maxwell Fry, Barry Johnston, Ross Levine, and Betty Slade for lucid comments. Joaquin Gutierrez and David Scott, in addition to former colleagues at the Federal Reserve Board, taught me much of what I know about bank supervision, even if they might not agree with the conclusions I have reached. Discussions with Millard Long over several years helped clarify the options presented herein.

I. Introduction

Financial reforms of one type or another have been of increasing popularity since the appearance of McKinnon's (1973) seminal volume. However, disappointment with the fruits of this reform process are common, especially in Africa and in transitional economies, in part perhaps because of reformers' high expectations. Disappointment with reform might also be due to perverse sequencing: often more visible aspects of reform, such as complete interest rate deregulation, bank recapitalization, or more recently, the creation of stock exchanges, have been pursued before basic infrastructure in finance – auditing, accounting, legal systems, and basic regulations -- have been prepared (Caprio, Atiyas and Hanson, 1994). This paper will focus on the latter factor, and argue that it is not just having any regulatory framework, but rather one both attuned to the institutions and structure of the economy and that encourages prudent behavior, which is important to the overall success of reforms and the stability of the financial system. Moreover, because participants in the financial system, both individuals and organizations, take time to adjust to changes in incentives, as noted below, it is important to begin re-shaping the regulatory environment early on in the reform process, along with other institutional development measures.

The next section focuses on why regulatory changes -- along with other financial reforms -- are so difficult and discusses the problems with current popular approaches in industrial and developing countries, which puts supervision as the first line of defense against unsafe and unsound banking practices. Then section III will lay out what are possible options

for building safer and more sound banking systems and argue that a fundamental element in any change for the better should include aligning incentives of bank owners with the goals of the country and the national authorities (that is, making the system "incentive compatible"), which should include the mobilization of savings and their efficient and prudent allocation. The options for better banking include: letting depositors have more of their funds at risk (a form of co-insurance), mandating or inducing (through higher liability limits) significantly higher capital adequacy ratios above those recommended by the Basle Committee, narrow banking, stricter entry limits to reduce competition in some financial systems, free banking, and mandatory diversification ratios. Enhanced supervision, which would complement all of these options except for free banking, would occupy a supporting role, as it did in most countries prior to the 1930s.

Developing and transitional country authorities increasingly are following what might be called the OECD-standard model: 8% risk-adjusted capital adequacy ratios and "beefed-up" supervision, with implicit or explicit deposit insurance the norm. All of the proposals discussed below in contrast appear quite radical and leave this paper open to the criticism of being unrealistic. Perhaps the best response to these concerns is that if a new model is not being considered now, when large losses have been sustained in developing and industrial economies, perhaps these considerations will be more realistic after the next wave of crises, when still larger losses can be expected. For some countries where the losses have already been quite large, as in Japan, Mexico, and Venezuela, or the injections of capital repeated, such as in Hungary, the future might be now.

II. Why are Regulatory Changes so Difficult

An observer new to financial issues might well ask why are financial reforms, including regulatory changes, so difficult, both to put in place and "get right," but also to evaluate. First, there is no simple index of successful financial reform. As noted by Levine (this volume), finance performs a variety of functions, many of which are difficult to measure. Even if one were to confine the analysis to changes in banking, the indicators that are readily available -- banks' balance sheet and income statements -- are subject to a variety of reporting differences and also can be manipulated to show what owners would like to convey. For example, as shown by de Juan (1988), the easiest way to improve on how a given loan looks is by granting another one to the same borrower, the practice of "evergreening." He also illustrated clearly how banks that are in trouble -- often due to insufficient diversification or interest rate or exchange rate mismatch -- can in effect build their balance sheet and income statement from the bottom up (for example, beginning first with the dividends they think it necessary to pay and arriving later at the interest income needed to justify the given dividend). With this amount of freedom, depositors, shareholders, and even supervisors will have a difficult time in reading accurately the condition of a bank. Only recently have firm level data become available in a few developing countries, which permit the assessment of how the allocation of capital has changed (Schiantarelli et al., 1994) and, by implication, how the banking system is performing one of its key roles, but this analysis does not elucidate the performance of individual banks. A second reason for the difficulty in assessing reform, and the focus of the remainder of this section, is that at least one part of the answer to how reforms will fare depends on a variety of factors, many of which are difficult to quantify.

Although many have argued that financial reforms will depend on macroeconomic factors, often this reasoning began with a now outdated approach which itself assumes that finance is unimportant and at best only passively reflects the workings of the macro economy. Gertler and Rose (1994) instead cast the argument in a modern framework, one which assumes information asymmetries and then derives that, in such an environment, lending decisions will depend importantly on borrower net worth. Shocks that reduce borrower net worth will drive up the premium for external finance, reduce investment, and thereby potentially impair intermediaries. Regulatory changes at times of improving borrower net worth will appear judicious, even if they entail significant future costs, while those preceding a collapse of borrower net worth will tend to be labelled failures, regardless of their merit. Given the crucial dependence of reforms and regulatory changes on borrower net worth, it would appear sensible, as argued in Caprio, Atiyas and Hanson (1994), to wait several business cycles before drawing firm conclusions about the success of any changes.[1]

In addition to borrower net worth, reforms affecting the banking system will depend on a variety of initial conditions, including the initial balance sheet and how it is allocated, the endowment of information and human capital, and most importantly, the incentive systems in financial intermediaries.[2] Although reform programs often take account of the starting balance sheet, usually the focus is only on whether the bank begins with positive or negative net worth. To be sure, net worth is an important variable, but attention on this variable has biased reforms to assuming that once any solvency problems have been fixed, little else need be done to ensure that banks will operate in a safe and sound matter. Yet, the allocation of assets

matters importantly as well: a skewed balance sheet before reform can lead to rapid reallocations as constraints are eased. And simultaneous portfolio reallocation by an entire banking system can produce swings in asset prices that have the potential to be destabilizing, as attested to by cases as diverse as those associated with housing and land price bubbles in Scandinavia, Japan, and Malaysia (Caprio et al, 1994).

But even when these balance sheet variables are taken into account, the other aforementioned initial conditions can lead to post-reform problems. If banks only or predominantly have information about unprofitable sectors, then they will tend either to continue lending to businesses they understand, even if unprofitable, or to underinvest in risky projects. The former case could be expected, for example, when state-owned banks in a transitional economy are accustomed to dealing with (or compelled to continue lending to) state-owned enterprises, or perhaps when private banks that already are bust undertake to lend to highly risky clients. In this case they might be willing to lend at high interest rates based on the (small) chance that the client might be able to repay and thereby rescue the bank from insolvency. When banks are solvent and profit maximizing, they tend to retreat from lending when information capital is depleted, especially when accounting and auditing standards, the basis for much financial information, are underdeveloped.[3]

Weak human capital, a routine feature of banking systems emerging from a long period of repression, also can tend to exhaust even substantial capital holdings, a reason, it should be clear, why significantly high capital ratios are not sufficient to ensure safe and sound banking.

But even more pernicious is the incentive system in banks following prolonged repression. To the extent that it reflects the pre-reform environment, which may have emphasized lending for unprofitable activities, it can continue to distort the allocation of capital long after reforms have been instituted. If the incentive system favors lending regardless of return, or acting like an employment agency, rather than a bank, it will be difficult to turn around the organization without significant change, most likely including some change of ownership. State owned banks are particularly difficult to change, as profits are not the final goal and, at least in most state-owned banks with which the author is familiar, compensation differentials are compressed and are not used to motivate staff. [4]

One popular example of slow-changing incentives in banking is the U.S. case after the creation of federal deposit insurance. Although this reform, enacted in 1933, might have been expected to lead to more risk taking on the part of bankers, in fact for the following 20-30 years, bankers -- those who lived through the many banking failures or the 1920s and 1930s -- remained quite conservative. It was only as nonbanks began to make significant competitive inroads into the banking business, and the Depression-era bankers retired, that "go-go" banking became popular.[5] Reforms might be expected to lead to more rapid changes where such significant shocks are absent and where the banking system is in private hands. State-owned banks tend to be much less, if at all, responsive to economic forces induced by reforms, and thus might be expected to be the slowest of all to change.

Regulations are an important part of the initial conditions -- in effect they are one of the

most important variables external to banks that help determine, with some lag, their internal incentive systems. For this reason, and because variations in regulations can take time to influence these incentive systems, and eventually banks' performance, it appears sensible to strive for regulatory change early in the reform process. The optimality of this proposed sequencing is even clearer when supervision is weak, as then it will be important to have bank owners' and managers' incentives aligned with the goals of the public for the financial system.

Most explicit or implicit models of banking regulation and supervision -- certainly those in virtually every OECD country today, with the notable exception of New Zealand-- assume an important role for bank supervision by government.[6] Part of the popularity of this model likely results from the post-World War II enthusiasm with the U.S. economy, even though, due in large part to political resistance to the emergence of truly national banks. the U.S. banking system historically has been relatively weak. Where there are so many banks -- 30,000 in the United States in the early 1920s and about 12,000 today -- and (at least in part) as a result so many bank failures, it might be understandable that supervision has acquired some popularity.

Developing bank supervision likely is important for developing and transitional economies, as often their pre-reform system is based only on verifying that banks have complied with different regulations concerning the direction of credit. Supervision can provide a credible threat that unsound or fraudulent activities might be detected and punished.

However, it is difficult to believe that supervision ever can fulfill a role that some have foisted on it, namely that of serving as the first line of defense against unsafe and unsound banking.

Rolnick (1994) argues that it is quite easy for bankers to hop on a plane to Las Vegas and put their entire assets at risk on the roulette wheel. With limited liability, it is trivial for them to hedge this risk and to wind up at least no worse off than before. and possibly a good deal richer. Deposit insurance, either implicit or explicit, provides bankers with the incentive to engage in such behavior, if they are not highly rewarded for taking prudent risks.[7] After all, they can always try to move elsewhere and try again. Only the taxpayer end up worse, in effect blindly underwriting risk taking that most -- except for the owners of the casinos -- would not knowingly endorse. Although admittedly a contrived example, it illustrates that, at least in some cases, by the time supervisors or depositors find out about a problem, the bank has already lost all of its capital.

In addition to the possibility of fleet-footed bankers, supervision suffers in many countries, as it is difficult to train and retain highly competent supervisors, primarily because their compensation might be a fraction of what private financial intermediaries pay. And, like many generals, supervisors have a tendency to fight the last war. U.S. supervisors -- no doubt true in Japan as well -- appear on the alert for overlending to the real estate sector or to developing countries, but in all likelihood the next wave of problems will not come from either but from a new risk, such as that posed by derivatives.[8]

Moreover, even when supervisors know of a situation sufficiently early to prevent large losses, they may be prevented from acting by political forces. In Chile. supervisors maintained that they knew that bankers were not covering their exchange risk but were prevented from requiring it as a fixed exchange rate was government policy. More blatant cases of abusing political power, such as the attempt by U.S. Savings and Loan (S&L) executives to buy congressional influence and regulatory forbearance. are all too common. In Venezuela, according to the former head of the National Securities Commission, the problems at Banco Latino, a "rogue" bank, were known as early as 1992, though the bank was only closed in January 1994. While it might turn out that losses began mounting even more rapidly in 1992, it is likely that the bank had lost its capital by that point already, and in fact had actively been making poor credit decisions -- and bidding up deposit rates -- for some time. [9] Still, it was not until early 1994 that the bank was closed, and Banco Latino's behavior already had spread to other banks; it was estimated in late 1994 that 17 of the nations' 50 banks are in critical condition and others are receiving extensive government support.[10] Inflation also has soared and capital flight has been associated with an approximate 50% fall in the value of the bolivar.

Lastly, strengthening supervision is an arduous task, and at best not a guaranteed path to a safe and sound banking system by itself. Experienced supervisors estimate that it could take many countries 5-10 years of substantial training before their supervisory skills would be near the capacity found in industrial countries. Even if supervision were the secret to better banking, does it make sense for countries starved of human capital to allocate significant talent

to supervising banks?

The preceding comments are not meant to suggest that supervision is unimportant. Good bank supervisors can be an effective ally for bank owners and senior management, helping to send a credible signal that fraud and unsafe practices will be punished. Transforming bank supervision from a system of checking on compliance with credit directives to one aimed at encouraging prudent risk taking is an important effort in this regard. But the point here is that without motivated owners, supervision alone will in all likelihood be ineffective.

III. Options for Better Banking

If the OECD model based on enhanced supervision and an 8% risk-adjusted capital ratio is not likely to be a good alternative for developing and transitional economies, what is? This section lays out and discusses several options, not all of which are mutually exclusive. Their underlying theme is to improve in one way or another the incentives facing bankers.

The first option calls for increased monitoring of banks by depositors -- that is a complete or partial end to deposit insurance. The advantage of this method is that depositors with funds at risk have the incentive to invest effort in investigating banks. The possibility that they might move their funds to better banks would provide some incentive for bankers to behave more prudently. However, one important drawback is that banks are inherently

opaque institutions. and depositors' ability to monitor them effectively can easily be doubted, as suggested above. True, before deposit insurance, more resources were invested in unearthing information about banks. For example, in the United States during the Free Banking era, "Bank Note Monitors" existed as daily periodicals to review the safety of various banks. Thus there is every reason to believe that new information sources would appear if depositor funds were at risk.

However, it is not clear that great weight should be placed on the shoulders of depositors, in view of the inability of presumably well informed -- and, with no safety net, highly motivated -- shareholders successfully to predict bank failures.[11] Indeed, actual and potential shareholders have access to substantial information already. Thus perhaps putting at most some depositor funds at risk might be recommended. Often, countries try to provide insurance only for small depositors, as larger depositors are thought to be better informed, along with having more funds at risk. As Caprio and Summers (1995) argue, however, it makes little sense to make the holders of large depositors feel more exposed to risk -- they might run at the first scent of real or imagined trouble. Moreover, they can always split up their funds into smaller amounts or move accounts offshore, where full insurance might be provided. And historically, at least in the U.S. case, deposit insurance limits have grown due to political forces. so a strategy based on limiting deposit insurance to small depositors may be destined to be eroded over time (Calomiris and White, 1993).

A more promising variant of this option, though one that remains vulnerable to this last

critique, is to in effect provide a co-insurance fund, such as by letting 20% of each depositor's account be at risk (Boyd and Rolnick, 1989). This would have the advantage of increasing depositor monitoring without making depositors too "jumpy," or to have their entire deposits at risk without having a reasonable chance of being able to monitor effectively.

A second option, which could complement the first, would to require bankers to hold higher capital-asset ratios. Higher capital in theory gives depositors, shareholders, and supervisors more time to detect unsafe practices, and increases the motivation of owners, as they will want to protect their funds. As supervisors point out, however, the first fallback for problem loans is provisions and earnings, not capital.[12] Indeed, if bankers were motivated to provision aggressively, little capital might be required. Although it is true that in the 19th century German and U.S. banks routinely held capital ratios as high as 25-50%, merely mandating higher capital alone might not be successful, and indeed the 19th century practice of holding more capital was not attained by fiat. Moreover, as noted above, a bank determined to take significant risks can exhaust its capital rapidly, as in the case of Rolnick's casino example, above. Thus, where supervisory skills are in short supply, raising capital ratios might provide greater comfort to authorities and to the public, but it would not appear to be a first-best choice by itself. Also, as with attempts to limit deposit insurance, it might be impractical in a world of cheap computing and communications, as banks can move offshore to havens with lower capital requirements. Although some governments -- especially those who have just engaged in a costly bail out of the banking system -- might be willing to see their banking industry move offshore, most will not tolerate this shift.

Rather than mandating higher capital ratios, a related variant that is appealing, especially given the difficulty in deciding how high a ratio is sufficient, is to raise liability limits on bankers. In the United States before the 1920s, bank shareholders faced double liability in many states, meaning that if losses exhausted the funds they put up as capital, then their personal fortunes were liable for a post-closure assessment in an amount up to the sum of funds they had invested. Even more severe, during the Scottish Free Banking Era (roughly 1700-1844), bankers faced unlimited liability; not surprisingly, this appears to have been a time of quite prudent banking. Of course, it is possible to raise the penalty for risk taking so much that many prudent investments, which would produce faster growth, will not be undertaken.[13] Unfortunately, there has been little variation of regulatory practice concerning limits on the liability of bank shareholders to permit an empirical analysis as to the optimal levels. Without such knowledge, authorities disposed to experiment might try raising liability limits to 150% or 200%, and see if this produces a desired change in banking practice without excessively choking off the supply of risk capital.[14]

Another alternative here is to in effect raise liability through a system of mutual liability, such as in the U.S. clearinghouse system, according to which member banks were liable for one another's losses. This system encouraged close supervision of member banks' activities (Calomiris, 1993) and appears to work well as long as membership remains relatively small.

A third option, and one that has enjoyed some popularity in the United States among

academic economists, is the narrow banking model (Simons, 1948 and Litan, 1987), according to which banks would only be allowed to place their assets in safe instruments, such as government paper, while other institutions, which would not be insured by the government, would be freer to engage in riskier activities. Banks then would be fail-proof, or if allowed to hold high quality and highly liquid non-government paper, at least quite safe, and deposit guarantees unlikely to be called. All risky activities would migrate to nonbank financial intermediaries. This proposal originated in the 1930s before the boom in mutual funds of the 1980s; supporters often point to the desirable risk-sharing properties of having investors bear part of the risk inherent in uncertain undertakings.[15]

However, there are several concerns with this proposal. First, as noted by Calomiris and Kahn (1991), notwithstanding recent changes in OECD markets, banks have dominated financial markets for many centuries, in part because substantial information and enforcement capability are required for arms-length, nonbank finance. Any economies of scale and scope in banking, which admittedly have been difficult to corroborate empirically, would be lost. Second, requiring banks to hold safer assets lowers the return they will pay and will produce a shift of funds to the presumably less regulated, non-bank financial sector. These institutions, which would then dwarf their already large counterparts today, would truly be too big to fail. If U.S. authorities could not allow the Chrysler Motor Company to go under, it is difficult to believe that many governments could offer a credible guarantee that they would permit a huge non-bank financial firm, one much closer to the payments system than was Chrysler, to fail. In sum, with either narrow banking or increased liability limits in banking, the danger is that

government guarantees will migrate along with depositors funds to nonbanks -- in other words, with more financial wealth in nonbanks, governments will be pressed to provide some guarantees on these funds. For governments that can adhere to the principle of insuring only those deposits in narrow banks, this proposal should be attractive.

The fourth option for authorities is to attempt to limit entry into banking sufficiently to increase the franchise value of bank licenses (Caprio and Summers. 1995). This proposal argues from U.S. evidence (Keeley, 1990) that banking began to become riskier in the 1950s, when profits eroded as a result of the gradual increase in competition from nonbanks and foreign institutions. Limiting entry will increase profits, the discounted value of which represents the franchise value of possessing a charter to do business as a bank. If this value is substantial, then bank owners will take actions to ensure that they will be open and able to earn those profits -- in other words, they will be motivated to behave in a safe and sound manner. Bank licenses could either be given away or sold, though if too high a price were charged it would greatly reduce the franchise value and so lead to unsafe banking.

Few countries have completely open entry into banking, and most require some initial capital, evidence of banking skills, and a good reputation for honesty. Indeed, some countries have insufficient competition, due to a variety of disincentives, from the small size of the potential market -- true in a number of African economies, in particular -- to various taxes on financial intermediation (Chamley and Honohan). By giving away "admission tickets" into banking, this proposal might reward corruption, as bribing officials in charge of licenses can

be expected where licenses are valuable. However, charging instead a high entry fee (initial capital) rewards previous beneficiaries of "the system." Thus, a distinct advantage is that this system could allow for new entrepreneurs to enter into banking, a distinct advantage in early U.S. history and possibly in transitional economies as well, where there might be a desire not to reward friends of the former system.

The chief drawback of trying to raise franchise value, is that it is difficult to maintain a lid on entry if profits are high. Authorities that attempted to establish excessive monopoly power by awarding relatively few charters would see nonbanks arise that performed many of the same functions. Relatedly, it is difficult to define the number of charters to grant, and some arbitrariness as to who receives them is unavoidable. Still, systems based on minimum capital ratios have arbitrary requirements for capital, which if set too high also can prompt disintermediation. And although raising capital can drive intermediation offshore, with entry restricted there would be an excess demand for bank licenses.[16] So this approach would call for balancing incentives for prudent banking with pressures to compete away banking business. Perhaps the most important feature of this approach to financial regulation is that it focusses on the incentives facing bank owners, and is based on the assumption -- confirmed it appears in the U.S. example -- that as these incentives are eroded bankers will naturally respond by taking on riskier exposures.

A last option to improve safety and soundness in banking is the complete opposite of monopoly banking, namely the free banking model in which anyone can establish a bank with virtually no limits on their activities. It should be clear that deposit insurance and free entry

are incompatible: in concert, they would attract unsavory elements into the industry. Therefore, as occurred in the United States and Scotland during their free banking eras, no deposit insurance should be provided under this option. Even without deposit insurance, however, authorities would be unwise to permit free entry if owners face limited liability, and instead employ either double-, triple-, or unlimited liability, as discussed above.

A key advantage of free banking is that it frees up the supervisory apparatus that, in varying degrees, is part of each of the above systems. By requiring depositors to monitor banks without full or partial insurance, free banking suffers from the same advantages and drawbacks as noted in the discussion of option 1. And if liability limits remained too low, failures could occur with pressure for government bailouts. Alternatively, if liability limits were set too high. the provision of loans for risky undertakings might be in short supply, relative to society's preferences.[17]

Whichever of these options are pursued, authorities should keep in mind that the majority of bank failures are caused by insufficient diversification, albeit for different reasons.[18] While the different options listed above would motivate owners to avoid a voluntary concentration of risk, authorities should make sure that their regulations do not mandate or reward excessive portfolio concentration. In small economies, limits on capital flows do precisely this: if banks cannot invest abroad, their portfolios necessarily will be exposed to shocks to the leading export goods. Many prices will be affected when the terms of trade declines, the more so the smaller the economy, so authorities in small economies

should move aggressively to lift portfolio limits on banks. Indeed, one could even conceive of a requirement that domestic banks in a small economy invest some portion of their assets abroad. To ensure that these funds are not squandered on risky foreign investments, foreign investments could be limited to shares in diversified mutual funds, at least until greater risk management expertise were acquired.

Conclusions and Guidelines for Safer Banking

"The" right regulatory model for developing and transitional economies -- and in the author's view, industrial countries as well -- is not yet known and may well not even be unique for all countries. Different institutions -- in the sense of rules, laws, and customs that regulate economic activities -- likely fit better with different options for banking and finance. However, the direction of reform is clear. Aligning bank owners' and managers' incentives with actions consistent with prudent risk taking -- in short, making the system incentive compatible -- would lift the excessive burden that has been placed on bank supervisors and more broadly on government to guarantee safe and sound banking. If owners have more at stake -- through increasing the impact of risk on their reputation, their deposits, present capital, personal assets, or future expected profits -- they can be expected to take greater measures to safeguard their bank than under the present system in most countries with limited liability, modest capital requirements, and some form of deposit guarantee.

A cost of the above proposals is that they will tend to widen interest rate spreads ---

either through less competition, higher capital, greater segmentation, or more generally by reducing government subsidies for risk taking. However, in the narrow banking or free banking variants, it is likely that savers would face a variety of choices as to how much risk they need face. And with any of these proposals, governments that have been restricting capital mobility have the option of increasing the ability of banks to diversify and thereby lower spreads. Conversely, the less the ability to diversify risk, the higher the required capital or the expected future profits needed to ensure safe banking. By widening spreads and/or by diverting local savings from domestic investment, these proposals appear to be counter to many governments' development efforts. However, the argument is that by better protecting savers (and taxpayers!), and also by improving the local investment climate, authorities might be able both to allow for greater diversification and to increase the supply of investible resources to the local economy. Most importantly, given increasing evidence on the importance of the efficiency with which funds are invested, compared with the total level of savings, as an engine of economic growth, these proposals, by better aligning bankers' incentives with prudent risk taking, should help to enhance development through improved resource allocation. Since even tiny improvements in factor productivity can pay substantial dividends, it would appear likely that the benefits of regulatory reform will be well worth the cost.

Bibliography

Akerlof, George A., and David M. Romer, 1994. "Looting: The Economic Underworld of Bankruptcy for Profit," forthcoming, Brookings Papers on Economic Activity, The Brookings Institution: Washington, D.C.

Bernanke, Ben, 1983. "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression," *American Economic Review*, vol. 73, no. 3, June.

Boyd, John H., and Arthur J. Rolnick, 1989. "A Case for Reforming Federal Deposit Insurance," Federal Reserve Bank of Minneapolis, 1988 Annual Report, pp 3-15.

Calomiris, Charles W. and Charles M. Khan, 1991. "The Role of Demandable Debt in Structuring Optimal Banking Arrangements," American Economic Review, vol. 81, no. 3, pp. 497-513.

Calomiris, Charles W. and Eugene N. White, 1993. The Origins of Federal Deposit Insurance," paper presented at the NBER conference on the Political Economy of Regulation, May 1993.

Caprio, Gerard Jr., and Lawrence H. Summers, 1995. "Financial Reform: Beyond Laissez Faire," with Lawrence H. Summers, forthcoming in Financing Prosperity into the 21st Century, MacMillan Press.

_____, Izak Atiyas, James Hanson, et al., 1994. Financial Reform: Theory and Experience, Cambridge University Press.

_____, and Ross Levine, 1994. "Reforming Finance in Transitional Socialist Economies," The World Bank Research Observer, vol. 9, no. 1, pp. 1-24.

Chamley, Christophe, and Patrick Honohan, 1990. "Taxation of Financial Intermediation: Measurement Principles and Application to Five African Countries, The World Bank, Policy Research Working Paper 421.

de Juan, Aristobulo, 1987. "From Good Bankers to Bad Bankers: Ineffective Supervision and Management Deterioration as Major Elements in Banking Crises," Washington, D.C.:World Bank, Financial Policy and Systems Division.

Keeley, Michael C., 1990. "Deposit Insurance, Risk, and Market Power in Banking," American Economic Review, vol. 80, no 5.

Levine, Ross, 1995. "Financial Functions, Institutions, and Growth," this volume.

Litan, Robert E., 1987, What Banks Should Do, The Brookings Institution, Washington, D.C.

McKinnon, Ronald, 1973, *Money and Capital in Economic Development*, Washington D.C.: Brookings Institution.

Rolnick, Arthur J., 1994. "Market Discipline as a Regulator of Bank Risk," in Safeguarding the Banking System in an Environment of Financial Cycles, Richard E. Randall, ed., Federal Reserve Bank of Boston.

Schiantarelli, Fabio Izak Atiyas, Gerard Caprio, and John Harris, 1994. "Credit Where It Is Due? A Summary of Empirical Evidence," in Gerard Caprio, et. al., Financial Reform: Theory and Experience, above.

Simons, Henry C. 1948. Economic Policy for a Free Society, University of Chicago Press.

Simons, Katerina, and Stephen Cross, 1991. " Do Capital Markets Predict Problems in Large Commercial Banks?" New England Economic Review, May/June.

NOTES

[1] And, as suggested above, to base conclusions, where possible, on the ability of intermediaries to raise funds and to allocate them prudently.

[2] Information capital is the accumulation of information on clients and risks which banks build up over time. As argued by Caprio (Chapter 3 in Caprio, Atiyas, and Hanson, 1994), banks will invest in information capital up to the point at which its marginal product equals the cost of additional information. The latter in general will be higher in developing countries, due to the shortage of accounting and auditing skills and standards, rating agencies, etc. Also, prolonged financial repression often leads banks to underinvest in information capital, and to acquire it in uneconomic -- often highly protected -- sectors.

[3] Bernanke (1983) associates the contraction of lending in the United States during the depression with the destruction of information capital that was possessed by the several thousand failed banks.

[4] Occasionally government officials will point to French state-owned banks as evidence that state ownership can work in this industry. However, the losses experienced by Credit Lyonnais, estimated at over $1 billion, should put to rest to this example. Also, that the French state owned banks performed as well as they did in part was a testament to the government's willingness to interfere relatively little in compensation decisions. Most governments hold wages in state banks to civil service levels, often a mere fraction of what private banks might pay.

[5] Caprio and Summers (1995) argue that the increase of competition from the nonbanks and foreign banks reduced the franchise value of bank licenses to the point that bank owners became less concerned with safe and sound banking. If interstate branching restrictions had been lifted in the 1950s, the resulting consolidation of U.S. banking might have left the industry with only 2000 large, diversified, and highly profitable banks, whose owners then would have had more of a stake in ensuring that they would have been around to collect these large profits. See also ().

[6] New Zealand authorities have been moving away even from supervising the financial system, based on the argument that to do so provides the public with the expectation that the authorities are guaranteeing some return on their funds. However, it is too early to tell if this system will be either able to ward off instability, or to persevere in the face of it.

[7] Even with high rewards for prudent risk taking, and notwithstanding good screening by the authorities in charge of granting licenses, there always will be some bankers with a sufficiently high rate of time preference that they will be motivated to "loot." See Akerlof and Romer, 1994.

[8] And since private banks can afford to buy the very best "rocket scientists," the Wall Street term for the mathematicians, physicists, and computer scientists who work on inventing new, often option-based financial products, the odds are against supervisory agencies uncovering excessive risks associated with these products in time.

[9] Indeed, what first attracted supervisors' attention was its rapid rate of growth and high real interest rates (which eventually reached 30% to 50%).

[10] See Global Finance, September 1994.

[11] See Simons and Cross, 1991, where it is noted that not only does the U.S. stock market fail to predict bank performance but in the case of downgrading by supervisors, insiders bought stock more often than not in the

immediate preceding quarter.

[12] In assessing the soundness of banks, supervisors look at the so-called CAMEL variables -- capital, asset quality, management, earnings, and liquidity. Even modest capital holdings will suffice if the others are strong.

[13] Speculation about the consequences of applying the death penalty or various forms of torture are beyond the scope of this paper, however much they might intrigue enraged authorities and taxpayers who have paid for the shenanigans of "ebullient" bankers.

[14] This solution used to be recommended for pollution taxes, as it is difficult to estimate the benefits and costs of raising pollution abatement taxes, leading some practical economists to suggest, rather than do nothing, to begin raising the taxes to see if the resulting level of pollution was desirable, given the costs. Unsafe banking can be treated as a similar, unsavory externality.

[15] In theory, Islamic banking, in which neither deposits nor "loans" bear fixed interest was to be a system in which banks behave like mutual funds. However, perhaps because of the demand by lenders and users of funds for some certainty, these banks usual provide some guaranteed minimum return on deposits and also put limits on the fluctuations of returns on investments.

[16] While a more monopolistic banking system would be characterized by higher spreads, bankers presumably would figure out that they would need to be more competitive on liabilities, as depositors can be expected to be more mobile than borrowers.

[17] To be sure, there may be a tradeoff between those preferences and safe and sound banking.

[18] Bankers may concentrate their risks due to: limited choice, assets whose prices move in a highly correlated fashion, linked ownership -- concentrating loans on a firm that owns the bank, or one run by the bank president's brother -- or more generally an inability to plan (de Juan, 1987).

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS1558	In Search of Price Rigidities (*Recent Sector Evidence from* Argentina	Jacques Morisset	December 1995	N. Cuellar 37892
WPS1559	Have Transport Costs Contributed to the Relative Decline of Sub-Saharan African Exports? Some Preliminary Empirical Evidence	Azita Amjadi Alexander J. Yeats	December 1995	S. Lipscomb 33718
WPS1560	Trade and Fluctuations	Aart Kraay Jaume Ventura	December 1995	R. Martin 39065
WPS1561	Income Inequality and Aggregate Saving: The Cross-Country Evidence	Klaus Schmidt-Hebbel Luis Servén	January 1996	E. Khine 37471
WPS1562	Catching Up with Eastern Europe? The European Union's Mediterranean Free Trade Initiative	Bernard Hoekman Simeon Djankov	January 1996	F. Hatab 35835
WPS1563	Equity and Growth in Developing Countries: Old and New Pespectives on the Policy Issues	Michael Bruno Martin Ravallion Lyn Squire	January 1996	P. Sader 33902
WPS1564	From Plan to Market: Patterns of Transition	Martha de Melo Cevdet Denizer Alan Gelb	January 1996	C. Rollison 84768
WPS1565	Housing Finance in Transition Economies: The Early Years in Eastern Europe and the Former Soviet Union	Bertrand M. Renaud	January 1996	R. Garner 37670
WPS1566	Liquidity, Banks, and Markets: Effects of Financial Development on Banks and the Maturity of Financial Claims	Douglas W. Diamond	January 1996	D. Evans 38526
WPS1567	Population Growth, Factor Accumulation, and Productivity	Lant Pritchett	January 1996	S. Fallon 38009
WPS1568	Determinants of Diarrheal Disease in Jakarta	Anna Alberini Gunnar S. Eskeland Alan Krupnick Gordon McGranahan	January 1996	C. Bernardo 37699
WPS1569	Improving Water Resource *Management in Bangladesh*	Rashid Faruqee *Yusuf A. Choudhry*	January 1996	C. Anbiah 81275

Policy Research Working Paper Series

	Title	Author	Date	Contact for paper
WPS1570	Protecting the Old and Promoting Growth: A Defense of *Averting the Old Age Crisis*	Estelle James	January 1996	S. Khan 33651
WPS1571	Export Prospects of Middle Eastern Countries: A Post-Uruguay Round Analysis	Alexander Yeats	February 1996	S. Lipscomb 33718
WPS1572	Averting the Old-Age Crisis: Technical Annex	Robert J. Palacios	February 1996	M. Pallares 30435
WPS1573	North-South Customs Unions and International Capital Mobility	Eduardo Fernandez-Arias Mark M. Spiegel	February 1996	S. King-Watson 31047
WPS1574	Bank Regulation: The Case of the Missing Model	Gerard Caprio, Jr.	February 1996	D. Evans 38526